

REMARKS

The drawings stand objected to as allegedly failing to comply with 37 CFR §1.84(p)(5). The Examiner states that reference characters "A", "B", and "C", shown in Fig. 11, are not defined in the specification. These reference characters are specifically mentioned in the description on page 20 in lines 1-4. In light of this, withdrawal of the objection is requested.

The specification stands objected to because it does not mention the continuing data. Appropriate correction has been made to overcome this objection.

Claims 1-18 are currently pending in the application. All claims stand rejected under 35 USC §112 as allegedly being indefinite for failing to particularly point out and distinctly claim the invention. The Examiner's has objected to the terminology "organic high polymer matrix". This terminology has been changed where it appears in the claims. Instead, the matrix is characterized as comprising at least one of a resinous material, a rubber, and a thermoplastic elastomer. Support for this amendment is found in the written description on page 9, in lines 7 and 8.

In light of this amendment, withdrawal of the objection under 35 USC §112 is requested.

Claims 1-18 stand alternatively rejected under 35 USC §102 as allegedly anticipated by, or in the alternative as obvious over, any of U.S. Patent Nos. 3,867,795 (Howard); 3,982,358 (Fukuda); 4,910,924, to Holden et al (Holden); 5,679,067, to Johnson et al (Johnson); 5,218,949, to Tomlinson et al (Tomlinson); and 5,314,512 (Sexton). Claims 1-4, 6-8, 16 and 17 stand alternatively rejected under 35 USC §102 as allegedly anticipated by, or in the alternative as obvious over, any of US. Patent Nos. 5,129,919, to Kalinowski

et al (Kalinowski); 5,912,216, to Thimmappaiah et al (Thimmappaiah); 4,142,870 (Lovejoy); 5,273,559, to Hammar et al (Hammar); and 3,982,359, to Elbel et al (Elbel). Claims 5, 9-15 and 18 stand still further alternatively rejected under 35 USC §103 as obvious over Kalinowski, Thimmappaiah, Lovejoy, Hammer, and Elbel.

Reconsideration of the rejection of claims 1-18 is respectfully requested.

In rejecting claims 1-18 based on Howard, Fukuda, Holden, Johnson, Tomlinson, and Sexton, the Examiner notes in summary, beginning on the bottom of page 4 of the Action, that all of these references “teach abrasive solids that comprise two distinct sections of abrasive/resin matrix material, wherein the sections have different sized and/or types of abrasive particles therein”. The Examiner acknowledges on the bottom of page 5 of his Action that these cited references “fail to mention any specific characteristics (criticality)”.

Claim 1, and its dependent claims, each characterize the abrasive solid as having a tensile strength of 6.0 to 1.3MPa and a tear strength of 6-10N/mm. These specific characteristics of the abrasive solid distinguish it from conventional abrasive solids, such as those in the six cited references. More specifically, these parameters define an abrasive solid that, compared to conventional abrasive solids, is softer and lends itself to being severed, by a cutter or knife, to process the same into a desired shape. The significance of these claimed ranges in affording this property is highlighted throughout applicant’s specification (for example page 8 lines 6-9 and page 16 lines 24 through page 17 line 4).

The Examiner argues on page 5 of his Action that since the cited references fail to mention any specific characteristics, this "constitutes a broad teaching of these characteristics, as long as the final abrasive solid is obtained".

Applicant respectfully submits that while specific numerical values have not been stated with respect to tensile strength and tear strength in the six cited references, the propriety of applying these references against the claims must be considered from the perspective of one skilled in this art. Each of the six cited patents is directed to a specific application of the abrasive structure disclosed therein. Each of Howard, Fukuda, Holden and Sexton is directed to a grinding wheel. One skilled in the art would recognize that the abrasive material must, to function as a grinding wheel, be hard to the extent that it could not be cut/processed as contemplated for the abrasive solid in applicant's claim 1. Tomlinson and Sexton each disclose an abrasive solid to be used for saws which, again, require a harder material than contemplated for the abrasive solid in claim 1. Johnson discloses an abrasive material for use in a brush. Once again, the brush elements, to be functional in a practical sense, would be required to have properties different than those recited for the abrasive solid in applicant's claim 1.

If an abrasive solid, such as that recited in claim 1, were used to make a grinding wheel, saw, or brush, as described in any of the above six references, the material would rapidly disintegrate, therefore making it inappropriate for use in that application. It is acknowledged that none of the six cited references expressly teaches an abrasive solid as recited in claim 1. Since the abrasive materials described therein are intended for components requiring that they have characteristics different than those recited in claim 1, a fair reading of these references is that there is no inherent disclosure of a solid

abrasive as recited in applicant's claim 1. Still further, since each of these references is directed to a durable product that has hardness sufficient that it cannot be readily cut to facilitate its use, one skilled in the art would not be motivated, based on the disclosure in any of these patents, to make a modification to arrive at an abrasive solid material, as in applicant's claim 1, that would not function in any of the structures disclosed.

Claims 2-8 each depend from claim 1 and recite further structural detail to further distinguish over the cited art. While there is no disclosure in the cited patents of specific parameters as recited in these dependent claims, the criticality of hardness for the abrasive material in the cited patents would lead one skilled in the art away from these further claim characteristics, appropriate only to a softer material.

Claims 16-18 all include limitations relating to the softer nature of the abrasive solid relative to the prior art. Claim 18 includes the limitations as to tear and tensile strength as in claim 1. The arguments made above, relative to the ability to cut the abrasive solid, apply to these claims.

Claims 9 and 18 have been further amended to characterize the abrasive solid as having two or more sections, differing from each other in particle size and/or kinds of the abrasive materials, as being consolidated in such a manner that each of a first and second of the sections, differing from each other in particle size and/or kinds of the abrasive material, can be separately engaged with and manually used to treat a surface independently of the other of the first and second of the sections.

By having the ability to independently use the sections, the advantages of the compositions of each section can be exploited with a single device. For example, one section may be constructed to perform rough abrasion, with the other smooth abrasion.

The prior art does not teach or suggest the provision of an abrasive solid having separate sections as claimed. Howard, Fukuda, Tomlinson and Sexton each disclose a construction wherein sections are required to be simultaneously contacted with a surface that is treated. In Holden and Johnson, only one section is used for abrasion.

Accordingly, claim 9 is believed allowable. This limitation in claim 18 further distinguishes claim 18 over the prior art.

Claims 10-15 each depend from claim 9 and recite further significant structural detail to further distinguish over the prior art.

The arguments made above apply equally with respect to the Examiner's rejection of claims 1-4, 6-8, 16 and 17, based on Kalinowski, Thimmappaiah, Lovejoy, Hammar and Elbel. Kalinowski, Thimmappaiah, Lovejoy and Elbel are all directed to abrasive solids used for grinding wheels, which inherently dictates the need for a hardness greater than that contemplated for the claim structure. Hammar is directed to an abrasive solid for dental articles, which again requires greater hardness than contemplated by the present invention.

As to the rejection of claims 5, 9-15 and 18, based on Kalinowski, Thimmappaiah, Lovejoy, Hammar and Elbel, it is again noted that these patents do not teach or suggest sections with different compositions that are independently usable. It is noted, however, that claim 5 does not require this independent use.

Reconsideration of the rejection of claims 1-18 and allowance of the case are requested.

Respectfully submitted,

By 
John S. Mortimer, Reg. No. 30,407

WOOD, PHILLIPS, KATZ,
CLARK & MORTIMER
500 W. Madison St., Suite 3800
Chicago, IL 60661
(312) 876-1800

Date: 